

20. (twice amended) The method of claim 19, wherein said packing material is selected from the group consisting of catalyst particles, alumina balls, inert particles, inert packing and mixtures thereof.

35 U.S.C. § 112, First Paragraph Rejections

The Examiner rejected claims 12 and 14-20 "under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." Office Action, August 22, 2002, page 2. The Examiner argued that "while the original specification discloses a reactor comprising only one fixed catalyst bed (e.g., drawing), it does not disclose a reactor comprising more than one catalyst beds." *Id.* (emphasis in the original).

*comprising* Applicants respectfully disagree. The present invention is particularly useful in reactors having only one catalyst bed. However, a person skilled in the art would be reasonably apprised from applicants' specification and claims, as originally filed, that the invention is also applicable to reactors having a plurality of catalyst beds. For example, the specification as originally filed, provides at page 2, lines 19-21, "a reactor for reacting a feedstock, said reactor comprising, a fixed catalyst bed for reaction of said feedstock, ..." (emphasis is ours). Also, at page 4, lines 19-21, of the specification as originally filed it is stated that "[t]his invention is also applicable to reactors having more than one catalyst bed but in which only the top portion of any of the fouling prone beds is bypassed." Also claim 1, of the parent application serial number 09/351,648, of which this application is a divisional, refers to "[a] reactor... comprising a fixed catalyst bed." (emphasis is ours). It is established that "comprising", in patent law, means "including the following elements but not excluding others." Robert C. Faber, Landis on Mechanics of Patent Claim Drafting § 7 (Fourth Edition, Release No. 5, November 2001). Thus, Applicants respectfully submit that "a reactor comprising a fixed bed" for all practical purposes would be tantamount to "a reactor comprising at least one fixed bed". Applicants respectfully request reconsideration and withdrawal of this rejection.

35 U.S.C. § 112, Second Paragraph Rejections

Applicants claim amendments have rendered Examiner's indefiniteness rejections mute. Reconsideration and withdrawal of all § 112, second paragraph, rejections is respectfully requested.

35 U.S.C. § 102 Rejections

Applicants acknowledge with appreciation Examiner's withdrawal of previous rejections based on U.S. Patent 3,469,950 to Mackley. However, the Examiner rejected claims 9-12 and 17-20 under 35 U.S.C. § 102(b) as being anticipated by Beal (U.S. Patent 3,607,000). The rejection is respectfully traversed.

It is well established that to anticipate a claim, a reference must disclose every element of the claim. *Verdegaal Bros. v. Union Co. of California*, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). Moreover, the identical invention must be shown in complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ 2d 1913 (Fed. Cir. 1989).

The Beal reference requires the presence of a closure means, such as a rupture disk (74) or a butterfly valve inside their bypass apparatus as described at column 14 lines 56-58 and in claims 1 and 2. Applicants claims as amended exclude such a closure means or rupture disk. Specifically, independent claims 9 and 12 require that the second hollow elongated member is continuously open to the bypass flow.

In Beal, upon a pressure drop increase, a rupture disk would have to burst or a butterfly valve would have to be opened using an external lever to allow feedstock flow through the bypass apparatus. In contrast, the present invention requires no such closure means or rupture disk. Unlike Beal, the present invention allows flow through the bypass apparatus even prior to fouling taking place. This bypass flow (automatically) gradually increases (without help from a closure means) as fouling occurs and pressure drop across the top layer of the catalyst builds up. Applicants have amended claims 9 and 12 to make explicit that the second hollow elongated member (bypass tube) is continuously open to the bypass flow.

The absence of even a single claim limitation in a prior art defeats anticipation. Here, Beal fails to disclose at least the above limitation of amended claims 9 and 12. For at least this reason, it is respectfully submitted that Beal does not anticipate amended claims 9 and 12 and the remaining claims depending therefrom.

### 35 U.S.C. § 103 Rejections

The Examiner rejected claims 14-16 as being obvious over Beal. The rejection is respectfully traversed.

A prima facie case of obviousness requires that some teaching or suggestion be found in the cited reference on how to modify the reference to obtain all of the elements of the claimed invention. See M.P.E.P. §§2143.01 and 2143.03 Seventh Edition, Rev. 1, Feb. 2000. In a proper obviousness determination, the changes from the prior art must be evaluated in terms of the whole invention. This evaluation should include whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that are necessary to produce the claimed invention. In re Chu, 36 USPQ2d 1089, 1094 (Fed. Cir. 1995). This includes what could be characterized as simple changes. See, e.g., In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984). (Although a prior art device could have been turned upside down, that did not make the modification obvious unless the prior art fairly suggested the desirability of turning the device upside down.)

Moreover, only when the prior art teaches or suggests all of the elements of the claimed invention does the burden fall on the applicant to rebut the prima facie case. In re Dillon, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). Such rebuttal can consist of any argument or evidence that is pertinent. Id. It is not required that:

a patent applicant's evidence and/or arguments traversing a Section 103 rejection must be contained within the specification. There is no logical support for such a proposition as well, given that obviousness is determined by the totality of the record including, in some instances most significantly, the evidence and arguments proffered during the give-and-take of ex parte patent prosecution.

In re Chu, 36 USPQ2d at 1094.

The Beal reference requires the presence of a closure means, such as a rupture disc (74) or a butterfly valve inside their bypass apparatus: Beal, col. 14, lines 56-58. Applicants' claims as amended exclude such a closure means or rupture disk. Applicants' claims require the use of a bypass apparatus having a bypass tube that is continuously open to the bypass flow.

Moreover, several disadvantages of using a rupture disk or a valve as compared to a continuous bypass device exist. For example, a rupture disk may fail to open or it may open prematurely, for example, due to a temporary upset in the flow rate to the reactor. In addition, a method using Beal's device in a large commercial reactor would require the use of multiple bypass devices with rupture disks or valves in each of them. Since, it is impractical to design all the rupture disks to burst open at precisely the same time, some of them will open early and some later. Bypassing in some rupture disks that have opened early will cause flow maldistribution in the catalyst bed which may cause operational problems like unsafe hot spots in the catalyst bed. If the rupture disks opened prematurely due to an upset, the reactor may require a shut down so that new disks could be installed. Similarly, if a valve is used, external levers would need to be built to activate these valves. The present invention does not have these shortcomings. Other advantages of the present invention over Beal exist.


For at least the foregoing reasons, it is respectfully submitted that all pending claims as amended are not obvious in view Beal.

#### CONCLUSION

Applicants respectfully submit that this Amendment places the application in condition for allowance. If the Examiner believes that prosecution and allowance of the application will be expedited through another interview, whether personal or telephonic, the Examiner is invited

to telephone the undersigned with any suggestions leading to the favorable disposition of the application.

Respectfully submitted,

  
George B. Georgellis  
Attorney for Applicants  
Registration No. 43,632  
Telephone No. (908) 730-2263

☒ Pursuant to 37 CFR 1.34(a)

ExxonMobil Research and Engineering Company  
P. O. Box 900  
Annandale, New Jersey 08801-0900

GBG:kak  
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